



3179 Bechelli Lane, Suite #110, Redding, CA 96002-2041 - Phone: (916) 246-5299 Fax: (916) 246-5164

August 19, 1997

Kate Hansel
CALFED Bay-Delta Program
1416 Ninth St, Suite 1155
Sacramento, CA 95814

Dear Kate,

At the August 6, 1997 meeting of the Lower Clear Creek CRMP, the group voted unanimously to support the proposal of the Townsend Flat Water Ditch Company (TFWDC) to solve the fish passage problem at the company's Saeltzer Dam facility.

There is probably no single project or action that can be taken on Clear Creek that will do more to allow the restoration of spring-run salmon and steelhead to the approximately 10 miles of spawning habitat above Saeltzer Dam. This has been consistently identified in all the anadromous fish restoration plans and legislation.

The proposal is in concord with the CRMP's vision statement and goals (see enclosed). Goal #4 is one of the most, if not the most important if the group's goals.

Many agencies have been involved in the development of the TFWDC proposal, so we feel it has been extremely well thought out. These agencies, most notably CA DFG, USFWS, USBR, USBLM, USNRCS, and CA DWR, have all been active and steady participants in the CRMP process. Western Shasta Resource Conservation District (WSRCD) is the coordinator of the CRMP but also has been involved in past and planned projects to introduce spawning gravel and solve soil erosion and fire danger problems in the watershed. Many of these projects are in the "upper watershed (above Saeltzer Dam). Solving the fish passage problem, combined with these other projects and increased water flows, will provide prime spawning conditions for the salmon and steelhead.

We urge you to approve and fund this very important restoration project.

Sincerely,

A handwritten signature in black ink, appearing to read "Richard Baumann", with a long horizontal flourish extending to the right.

Richard Baumann
Associate Director, WSRCD
Lower Clear Creek ~~CRMP~~ Program Manager

enclosure (1)

CLEAR CREEK VISION STATEMENT

The lower Clear Creek watershed has:

- * Healthy populations of salmon (fall, late-fall, and spring run), steelhead, and rainbow trout.
- * Biological diversity, with continued habitat restoration and improvement.
- * A strong education component for children and adults regarding its natural resources and history.
- * Many opportunities for low impact, compatible non-motorized recreation.
- * Clean, attractive surroundings which are safe for visitors.
- * Respect for the rights of nearby private property owners.



United States Department of the Interior

BUREAU OF RECLAMATION
Northern California Area Office
16349 Shasta Dam Boulevard
Shasta Lake, California 96019-8400

AUG 27 1997

IN REPLY REFER TO:

NC-311
ENV-4.10

AUG 25 1997

CALFED Bay Delta Program
1416 Ninth Street, Suite 1155
Sacramento, California 95814

Subject: Endorsement of the Townsend Flat Water Ditch Company Proposal for Fish Passage
over Saeltzler Dam

Dear Sirs:

Reclamation has reviewed the proposal submitted by the Townsend Flat Water Ditch Company (Townsend) for fish passage over Saeltzler Dam. We believe the alternative presented by Townsend will provide the greatest biological benefit for anadromous fish; therefore, we strongly suggest that CALFED provide funding for the project.

Saeltzler Dam has been consistently identified as a key element of restoring anadromous fish in Clear Creek and the upper Sacramento River in all anadromous fish restoration plans prepared by State and Federal agencies over the past decade. Additionally, the Central Valley Project Improvement Act (CVPIA), section 3406(b)(12), mandates restoration of Clear Creek.

Saeltzler Dam, located six miles upstream from the confluence with the Sacramento River, is a barrier to anadromous fish and prevents access to twelve miles of upstream habitat. Saeltzler Dam does have an operating fish ladder, but poor design and a height of 15 feet essentially prevents passage beyond the dam. In addition to poor ladder design, the current location of the dam and ladder is less than optimal. Immediately below Saeltzler Dam is a steep gradient bedrock gorge approximately 300 yards long. Ascending the gorge is physiologically challenging and exhausting for anadromous fish. Immediately after climbing the gorge, fish face the arduous task of climbing a tall fish ladder. Therefore, the current location of Saeltzler Dam and ladder creates a dual passage challenge to fish in a very short distance.

The proposed project consists of removing and replacing Saeltzler Dam with a low-head dam 2,000 feet upstream and modifying the bedrock gorge to improve passage. The new dam would be approximately 400 feet wide and have a hydraulic height of 4 feet. The dam's superior upstream location will provide fish a section of stream where they can recover from ascending the gorge. Furthermore, the low-head dam height of approximately 4 feet is significantly easier for

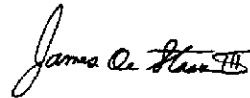
fish to climb compared to a 15-foot ladder at the current dam location. The new upstream location and reduced dam height would have a synergistic effect providing significantly greater passage efficacy than any other alternative.

Securing an effective means of passage is imperative in allowing access to 12 miles of new anadromous fish habitat, currently blocked. Achieving successful passage would primarily benefit spring-run Chinook salmon and steelhead. It is estimated that effective passage could increase available habitat for approximately 1,800 spawning pair of spring-run Chinook salmon and 4,000 spawning pairs of steelhead. Also, improved spawning gravel replenishment would be achieved with this project.

As the lead agency for the CVPIA restoration of Clear Creek, we fully support the proposed alternative and are moving forward on a feasibility study examining the project in detail. We estimate a total of \$1,600,000 (\$800,000 in fiscal years 1998 and 1999) to be available to fund the project. Fiscal projections indicate it is unlikely that CVPIA funds appropriated for Clear Creek would be sufficient to complete the entire project.

Your careful review and consideration of the proposal would be appreciated. If you have any questions concerning biological benefits or cost share arrangement, please contact me at (916) 275-1554.

Sincerely,



James De Staso III
Program Manager

cc: Mr. Lee W. Salter
Townsend Flat Water Ditch Company
292 Hemsted Drive
Redding, California 96002

Norman S. Braithwaite, Incorporated
PO Box 992815
Redding, California 96001-2815

FI-108

NORMAN S. BRAITHWAITE, INCORPORATED

P.O. Box 992815

1714 West Street

Redding, CA 96099-2815

Ph: (916) 245-0864 Fax: (916) 245-0867

July 25, 1997

CALFED, Bay-Delta Program Office
1416 9th Street, Suite 1155
Sacramento, CA 95814

Re: Category III Proposal

Gentlemen:

Enclosed, please find ten copies of a proposal for fish passage over Saeltzer Dam on Clear Creek, Shasta County. I am optimistic that you will find the project beneficial and worthwhile. Please let me know if you require any additional information for your evaluation of this proposal. Letters of support from involved agencies and organizations will be arriving soon.

Thank you for the opportunity to assist you accomplish your goals.

Sincerely,



Norman S. Braithwaite, P.E.
Civil Engineer



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Redding Resource Area
355 Hemsted Drive
Redding, California 96002

AUG 19 1997

F1-108

AUG 22 1997

CALFED

Bay-Delta Program Office
1416 9th Street, suite 1155
Sacramento, CA 95814

CA360
1780
August 12, 1997

Re: Saeltzer Dam Fish Passage Project on Clear Creek, Shasta County

Dear Funding Committee Members,

Since becoming an active participant in Clear Creek restoration in 1994, we have enjoyed working with numerous cooperative agencies and individuals, creating long term solutions to complex resource problems. These resource issues extend across the landscape over a complex land ownership pattern. Our role as a significant landowner and resource steward in the watershed is to facilitate restoration of the anadromous fishery.


The single most important issue in Clear Creek is fish passage. The Saeltzer Dam Fish Passage Project proposal is the best biological, long term solution for the passage problem and opening up 12 miles of habitat. Other alternatives have been evaluated but each has limitations and none guarantee successful passage.

The fish passage proposal is a comprehensive solution to the situation which addresses all aspects of the stream diversion and the migration barrier it creates. The Townsend Flat Water Ditch Co. has agreed to this comprehensive solution which satisfies the needs of all the parties involved. In our role as land owner where the new low head dam and fish ladder complex would be built, we would work closely with other CRMP partners to accomplish the objectives of the proposal.

This proposal is compatible with and complimentary to other restoration actions currently in progress. Those actions include: floodplain gravel mining cessation, channel and floodplain restoration, stream flow management, riparian enhancement, spawning gravel injection, upper watershed erosion control, and upper watershed fuel treatments.

Thank you for considering this proposal and your assistance improving natural resources in the Clear Creek watershed.

Sincerely


Charles M. Schultz
Area Manager



United States Department of the Interior
FISH AND WILDLIFE SERVICE
NORTHERN CENTRAL VALLEY FISH AND WILDLIFE OFFICE
10950 Tyler Road
Red Bluff, California 96080
Office (916)527-3043 Fax (916)529-0292

F1-104-108

25 July 1997

CALFED Bay-Delta Program
1416 Ninth Street
Suite 1155
Sacramento, California 95814

To Whom It May Concern:

Enclosed are four formal proposals and one inquiry submittal (titles listed below) developed by the Northern Central Valley Fish and Wildlife Office for your assessment. These proposals have been developed in response to the Request For Proposals, 1997 Category III, received by our office in June 1997.

1. Abundance and seasonal, spatial and diel distribution patterns of juvenile salmonids passing the Red Bluff Diversion Dam, Sacramento River California.
2. Seasonal and annual abundance of aquatic piscivores, Sacramento squawfish *Ptychocheilus grandis* and striped bass *Morone saxatilis*, near the Red Bluff Diversion Dam, Sacramento River, California
3. Monitoring juvenile chinook salmon and steelhead in Clear Creek, Shasta County, California
4. Monitoring adult and juvenile spring and winter chinook salmon in Battle Creek, California
5. Spawning areas of green sturgeon *Acipenser medirostris* in the upper Sacramento River (Inquiry Submittal)

If you have any questions please contact Richard Johnson of my staff or myself. Thank you for your consideration.

Sincerely,

James G. Smith

97 JUL 28 PM 12:15

DWR WAREHOUSE

97 JUL 29 PM 12:37

Proposal

SAELTZER DAM FISH PASSAGE PROJECT
CLEAR CREEK, SHASTA COUNTY

Owner:

Townsend Flat Water Ditch Company
Lee W. Salter, President
292 Hemsted Drive, Redding, CA 96002
Phone: (916) 222-0696 Fax: (916) 221-6045

Prepared By:

Norman S. Braithwaite Incorporated
Project Manager, Principle Engineer
P.O. Box 992815, Redding, CA 96001-2815
Phone: (916) 245-0864 Fax: (916) 245-0867
e-mail: normb@awwwsome.com

July 25, 1997

TOWNSEND FLAT WATER DITCH COMPANY

292 Hemsted Drive, Suite 100

Redding, CA 96002

(916) 222-0696

July 25, 1997

CALFED
Bay-Delta Program Office
1416 9th Street, Suite 1155
Sacramento, CA 95814

Re: Saeltzer Dam Fish Passage Project on Clear Creek, Shasta County

Enclosed is Townsend Flat Water Ditch Company's ("Company") request to receive CalFed Category III funding for the Saeltzer Dam Fish Passage Project on Clear Creek, Shasta County. The proposal has been prepared by our agent, Norman S. Braithwaite, in conjunction with representatives from the U.S. Bureau of Reclamation, the California Department of Water Resources, the California Department of Fish & Game, the Bureau of Land Management, and other government agencies.

The Company believes the enclosed proposal represents the best project to alleviate fish passage issues on Clear Creek while preserving the Company's water rights. As noted in the proposal, the project will greatly benefit priority species by opening 12 miles of previously inaccessible habitat. We look forward to your positive response to this request and to working with you on this project in the future.

Please contact Mr. Braithwaite if you have any questions or require additional information.

Sincerely,



Lee W. Salter
President

LWS/clg

— —

Executive Summary / Inquiry Submittal Format

PROJECT: Saeltzer Dam Fish Passage Project

APPLICANT: Townsend Flat Water Ditch Company
292 Hemsted Drive, Redding, CA 96002

PROJECT DESCRIPTION AND PRIMARY BENEFITS:

Providing fish passage at Saeltzer Dam has consistently been identified as a key element of restoring anadromous fisheries resources in Clear Creek and the upper Sacramento River in all of the anadromous fish restoration plans and in legislation prepared by state and federal agencies over the past decade. The proposed project consists of removing Saeltzer Dam and replacing it with a low height "fish friendly" diversion structure located approximately 1800-feet upstream of the existing dam. This project will improve fish migration in Clear Creek while preserving existing water rights.

The proposed dam will be approximately 400-feet in total length and 4-feet in height. Additional new project features will include a modern multi-flow fish ladder, a fish screen which will meet the new Steelhead criteria, 1850-feet of buried concrete diversion pipe with headworks and a wasteway, a 220-foot long elevated pipe bridge and miscellaneous related features. Removal of the existing dam will consist of dewatering the stream, excavation of sediments deposited upstream of the dam then removal of the dam itself. Modification of a rock gorge located downstream of the existing dam will be conducted to improve passage conditions for upstream migrants. Removal and replacement of the existing dam with a new low head dam located upstream will provide biological performance significantly greater than any option which considers providing passage at the existing dam.

Primary benefits of the proposed project include the following priority habitats and species:

- 722,500 square feet of new Chinook spawning habitat above the existing dam.
- 952,500 square feet of new Steelhead spawning habitat
- Improved spawning habitat below existing dam (improved gravel replenishment).
- 1,806 spawning pairs, Chinook Salmon carrying capacity above existing dam (full benefit for spring run, moderate benefit for fall run).
- 4,088 spawning pairs, Steelhead carrying capacity above existing dam.
- Reduced poaching and predation of priority species.

APPROACH / TASKS / SCHEDULE

The proposed project is anticipated to be completed in three phases consisting of permitting and design (Phase 1) and two construction phases during two construction seasons. The first phase of the project may be funded separately from the second and third phases. It would be difficult, but not impossible, to fund the construction phases (2 and 3) separately from each other. The primary goal of this proposal is to procure funding for the first phase of the proposed project.

Design of the proposed project will be accomplished through a private-public partnership. Services offered in this proposal have been closely integrated with work being conducted by the State of California Department of Water Resources (DWR) under contract with the State of California Department of Fish and Game (DFG) and the United States Bureau of Reclamation (BOR). Because of the nature of the project and the number of involved agencies and organizations, proposed project facilities will be designed by committee during a series of design meetings.

Assuming a start date of October 1, 1997, design services adequate to prepare bid documents for the first phase of construction are expected to be completed by April 30, 1998. Phase 2 construction is anticipated to commence June 1, 1998 and be completed by October 30, 1998. Phase 1 design services for facilities not directly associated with Phase 2 construction will continue through the first construction season and be completed near the end of 1998. Phase 3 construction is anticipated to commence in May 1999 and be completed by October 30, 1999. Design services during construction offered as part of project Phases 2 and 3 will be conducted with Phase 2 and Phase 3 construction.

JUSTIFICATION FOR PROJECT AND FUNDING BY CALFED:

Saeltzer Dam has long been recognized as a significant barrier to the migration of Steelhead and Salmon. Considerable spawning habitat in the 12-mile reach of Clear Creek upstream of the dam is presently inaccessible and not used by these species. Providing passage will make this valuable spawning habitat available to Steelhead and late fall and spring runs of Chinook Salmon. TFWDC does not have a revenue base capable of supporting a project providing the priority habitat and benefits to priority species of the proposed project and therefore is seeking assistance from Calfed.

BUDGET COSTS AND THIRD PARTY IMPACTS:

Project Phase	Total Estimated Cost	Potential Cost Share	Unfunded
1 (Design)	\$ 388,200	\$ 150,000	\$ 238,200
2,3 (Construction)	2,483,000	800,000	1,683,000

Known third party impacts are of very limited significance.

APPLICANT QUALIFICATIONS:

The team assembled to design and manage the proposed project consists of well established specialty firms with experience working on projects with similar features. The lead consultant, Norman S. Braithwaite Incorporated, has substantial experience participating in multidisciplinary design teams and has worked closely with other team firms for several years.

MONITORING AND DATA EVALUATION:

DFG has an existing program of monitoring Salmon and Steelhead in Clear Creek. The benefits of the proposed project will be evaluated under this existing monitoring program.

LOCAL SUPPORT / COORDINATION / COMPATIBILITY WITH CALFED OBJECTIVES:

Considerable support for this project has been expressed during Clear Creek Coordinated Resource Management Plan (CRMP) meetings (a public forum). The proposed project integrates well with and is essential to numerous habitat and species management plans in the Clear Creek and Sacramento River basins. The proposed project also integrates well with other existing and planned ecosystem management projects in the Clear Creek basins. The proposed project, being developed through a series of interagency meetings, is well accepted by all involved agencies. Finally, the proposed project, the purpose of which is to enhance the habitat for species considered a priority by Calfed, is a significant opportunity to meet the objectives of Calfed.

Title Page

Proposal

SAELTZER DAM FISH PASSAGE PROJECT
CLEAR CREEK, SHASTA COUNTY

Owner:

Townsend Flat Water Ditch Company
Lee W. Salter, President
292 Hemsted Drive, Redding, CA 96002
Phone: (916) 222-0696 Fax: (916) 222-0695

Prepared By:

Norman S. Braithwaite Incorporated
Project Manager, Principle Engineer
P.O. Box 992815, Redding, CA 96001-2815
Phone: (916) 245-0864 Fax: (916) 245-0867
e-mail: normb@awwwsome.com

Technical and Financial Contact:

Norman S. Braithwaite

Project participants:

Townsend Flat Water Ditch Company (TFWDC)
Norman S. Braithwaite, Inc. (NSB)
Natural Resource Conservation Service (NSR), subconsultant
The² Engineering Company, subconsultant

Project Collaborators:

Bureau of Land Management (BLM)
Bureau of Reclamation (BOR)
California Department of Fish and Game (DFG)
Department of Water Resources, Northern District (DWR)
Natural Resource Conservation Service (NRC)
United States Fish and Wildlife Service (USFWS)
Western Shasta Resource Conservation District (WSRCD)

GROUP TYPE 1

July 25, 1997

Project
Description

PROJECT DESCRIPTION

Providing fish passage at Saeltzler Dam on Clear Creek has been consistently identified as a key element of restoring anadromous fisheries resources in Clear Creek and the upper Sacramento River in all the anadromous fish restoration plans and legislation (CVPIA) prepared by state and federal agencies over the past decade. Removal and replacement of the existing dam with a low dam located upstream will provide biological performance significantly greater than any option which considers providing passage at the existing dam.

The proposed project consists of removing and replacing Saeltzler Dam, a significant barrier to fish migration, and related work to improve passage while maintaining existing agricultural water diversions. Project facilities consist of improved access roads, removal of the existing Saeltzler Dam and sediment plug upstream of the dam, construction of a new, low height dam and fish passage facility approximately 1800-feet upstream of the existing dam, installation of 1850-feet of new diversion pipe with associated headworks, fish screens and wasteway, construction of a 220-foot long pipe crossing, modifications to the rock gorge immediately downstream of the existing dam and miscellaneous facilities related to all of the above.

One or more existing unmaintained roads accessing the south side of Clear Creek in the vicinity of Saeltzler Dam will be improved to provide restricted full year access to the proposed project. Improvements will consist of widening, gravel surfacing and providing proper drainage.

Prior to the removal of Saeltzler Dam, flows in Clear Creek will be temporarily diverted through a diversion pipeline constructed as part of the project. Flows will be returned to Clear Creek through the existing inoperable fish ladder tunnel at the existing dam. Deliveries to the Townsend Flat Water Ditch Company (TFWDC) will be accomplished using a temporary siphon or pipe crossing. Approximately 20,000 cubic yards of deposited sediment located in the Clear Creek channel upstream of the existing dam will then be removed to avoid a rapid and undesirable redistribution of sediments after flows are returned to the channel. Finally, the existing dam, consisting of reinforced concrete, crib timbers and material deposited among the timbers will be removed.

The proposed dam will be approximately 400-feet in length and have a hydraulic height of 4-feet at a flow of 150-CFS. The hydraulic height of the dam will decrease as flow increases. The new diversion structure is anticipated to be a concrete gravity dam, 400-feet in length, or a composite structure consisting of up to 200-feet of earth abutment and the remainder of concrete (gravity section) centered on the existing stream channel. Abutment fills will be constructed to an elevation 3-feet above the water surface during the most probable 100-year flood. Headworks for TFWDC will consist of a vertical concrete wall with a head gate.

Fish passage facilities at the proposed dam will consist of a six pool fish ladder or a series of baffles designed to minimize interruption to fish passage while maintaining the head necessary to meet the demands of TFWDC.

A new diversion pipe, 1850-feet in length, will be placed between the proposed dam and the pipe crossing. A new wasteway and screening facility designed to meet the current Steelhead screening requirements will be located as close as practical to the headworks considering maintenance and flood conditions.

A pipe crossing, approximately 220-feet in length and consisting of four 55-foot spans of 48-inch diameter welded steel pipe supported on three concrete piers and two concrete abutments, will connect the new ditch to the existing screening box near the north side of the existing dam. This crossing will be located in the near vicinity of the existing dam. The soffit of the pipe crossing will be placed 2-feet above the water surface elevation during the most probable 100-year flood.

The gorge located immediately downstream of the existing dam will be modified by drilling and blasting to improve conditions for upstream migration of fish. The modifications will consist of widening the channel to be more similar to the next reach of gorge downstream. The gorge to be modified is approximately 25-feet in width and is anticipated to be widened to approximately 40-feet. Project facilities are shown in attached Exhibit 1.

LOCATION: Clear Creek, Shasta County. See attached Exhibit 2.

EXPECTED BENEFITS:

Primary: Priority Habitat, Instream Aquatic:

- 722,500 square feet of new Chinook spawning habitat above existing dam.
- 952,500 square feet of new Steelhead spawning habitat above existing dam.
- Improved spawning habitat below existing dam (improved gravel replenishment).

Priority Species:

- 1,806 spawning pairs, Chinook Salmon carrying capacity above existing dam (full benefit for spring run, moderate benefit for fall run).
- 4,088 spawning pairs, Steelhead carrying capacity above existing dam.
- Reduced poaching and predation of priority species.

Secondary: Removal and replacement of a dam with high risks. The existing dam is a dangerous attractive nuisance at which fatalities have been experienced in recent years. Any failure of the dam would result in transient high flows, a rapid and undesirable redistribution of fine sediments presently stored behind the dam and loss of deliveries to customers of the TFWDC.

Trapping of fines from Clear Creek by off channel deposition in the historic gravel mining area upstream of the proposed dam (this may develop into a future fine sediment trap project).

Reduced exposure of project facilities to vandalism.

Screening facilities meeting new Steelhead requirements.

Improved habitat for local migrating species including Rainbow Trout, Sucker and Squawfish.

Improved food supply for Bald Eagles and Osprey upstream of Saeltzler Dam.

Third Party: Immediate local economic benefit related to construction

Sustained economic benefit related to improved recreation.

Reduced risk to the public and downstream landowners.

A number of other habitat improvement projects are being implemented and/or have been approved in the Clear Creek basin between Saeltzer Dam and Whiskeytown Dam. These include increased releases from Whiskeytown Dam (providing improved hydraulic conditions and lower water temperatures), supplementing spawning gravels in the channel, upland restoration and erosion control reducing the yield of fines to the stream and channel modifications to increase channel complexity. At present the benefit of these projects is limited to the local species.

BACKGROUND AND JUSTIFICATION:

Saeltzer Dam, constructed near the turn of the century, has long been recognized as a significant barrier to the migration of Steelhead and Salmon. The existing dam is a vertical "reinforced" concrete wall 15-feet tall by 200-feet wide. Considerable spawning habitat in the 12-mile reach of Clear Creek upstream of the dam is presently inaccessible and not used by anadromous species. Estimates of the areas of suitable spawning beds and the number of spawning pairs of Steelhead and Chinook Salmon are presented in the Expected Benefits section above. These estimates are interpolated from tables presented in the September 1986 Special Report prepared by BOR, "Central Valley Fish and Wildlife Management Study, Evaluation of the Benefits and Costs of Improving the Anadromous Fishery of Clear Creek, California", assuming present substrate conditions (average of 1980 "poor" conditions and "improved" conditions). Releases from Whiskeytown Dam recommended by DWR in their Clear Creek Fishery Study dated March 1986 were used for quantifying the benefits. Primary benefits for other flows are shown in Exhibits 3 and 4. Providing passage for anadromous species will make this valuable spawning habitat available to Steelhead and the spring and late fall runs of Chinook Salmon.

Prior efforts to provide fish passage over Saeltzer Dam dating back to the 1950s have failed. Reasons for failure include lack of knowledge relating to the design of fish ladders, difficult site conditions and limited funds available for fish passage projects. Present engineering challenges associated with providing fish passage over Saeltzer Dam include improving fish passage conditions in the gorge just downstream of the existing dam, the integrity and safety of the existing dam, maintenance of the existing diversion for customers of the TFWDC and a host of other lesser but significant issues. The proposed project is expected to be a permanent solution to the existing fish passage problem. The project will not be affected significantly by long term changes in climatic conditions and is not anticipated to be a restriction as new populations of anadromous species reach the upstream ecosystem limit.

Considerable recent efforts have been made toward addressing the problem of fish passage at Saeltzer Dam. On a piecemeal basis, projects consisting of gorge enlargement, sediment removal, dam removal and/or modification and various forms of fish ladders have been investigated and some even permitted. Because of concerns about the integrity of the existing dam none of these projects have been implemented and the permits have expired. Presently, the DWR is completing a comprehensive feasibility study addressing fish passage at Saeltzer Dam. Ten passage alternatives were defined and three are presently considered possible. Of the three, the project described in this proposal is identified and considered best for fish passage (both upstream and downstream). Other

potential projects consist of replacement of Saeltzer Dam substantially in kind with a large multi-flow fish ladder and construction of the fish ladder only. Both of these alternatives provide compromised fish passage (lower efficiency and higher stress) and the fish ladder only alternative has high risk of existing dam failure and damage. The alternative consisting of replacing Saeltzer Dam plus a fish ladder is expected to be similar in cost to the proposed project. All alternatives include gorge enlargement. Because of the greater biological benefits the proposed project is the preferred alternative being analyzed by DWR. The DWR analysis will be completed by September 1997.

A bibliography of supporting studies, permit applications and restoration plans directly related to fish passage at Saeltzer Dam is attached as Exhibit 5.

PROPOSED SCOPE OF WORK:

The proposed project is anticipated to be completed in two phases of work consisting of a design phase and a construction phase. The design phase will consist of environmental studies and permitting, several design tasks, preparation of detailed drawings and bid documents and project management. The construction task will consist of advertising the project for construction, selection of a contractor, construction of project facilities, design services during construction and continued project management. Project phases may be funded separately.

Phase 1: Design and Permitting:

- Task 1. Environmental clearance. The proposed project will be regulated under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). Lead agencies are anticipated to be Shasta County for CEQA or DWR and BOR for NEPA. The environmental/permitting consultant will assemble, prepare and submit all documentation needed to obtain environmental clearance for the proposed project. CEQA compliance will likely be in the form of an Initial Study (IS) with mitigation supporting a Negative Declaration. NEPA will be satisfied through an Environmental Assessment (EA) with mitigation supporting a Finding of No Significant Impact. To the extent possible, the environmental/permitting consultant will utilize existing information to complete the environmental analysis.
- Task 2. Permitting. State, local and federal permits are anticipated for specific construction activities. Applications for these permits including a Fish and Game Code Section 1601 Agreement Notification for the DFG, a Clean Water Act Section 404 (wetlands) permit for the U.S. Army, Corps of Engineers, a Clean Water Act Section 401 permit for the California Regional Water Quality Control Board and an application for a County Grading Permit will be prepared by the environmental/permitting consultant.
- Task 3. Pre-design hydraulic studies. Determine the existing condition flood profiles for selected floods and low flows of significance. Determine the anticipated condition flood profiles for the previously defined flows considering enlargement of the gorge, removal of the existing dam, removal of sediment behind the existing dam and construction of the anticipated facilities. The anticipated condition backwater model will be used for hydraulic design of the proposed dam and diversion pipeline.

- Task 4.** Design of proposed low height dam. After identifying the final configuration of the proposed dam, design the gravity section of the concrete dam and the structural section for the earthfill abutments.
- Task 5.** Hydraulic and structural design of the diversion headworks, conduit, pipe crossing and screening facility.
- Task 6.** Fish ladder. In consultation with DFG, conduct the hydraulic design of the proposed fish ladder. After the physical features of the fish ladder are defined, conduct structural design of the ladder.
- Task 7.** Sitework and miscellaneous. Locate and size drainage facilities, minor crossings, access facilities, fences, etc.
- Task 8.** Prepare detailed drawings and bid documents.
- Task 9.** Project management and reporting. Conduct meetings with project team members, state, federal and local agencies and local collaborative groups as required to keep the project on track and best meet the concerns of all. Written monthly progress and financial reports will be prepared and submitted. These reports will identify work completed, budget expended, timeliness of work, any problems encountered accomplishing work and any unanticipated work which may arise.
- Phase 2: 1998 Construction.** Construction of the diversion pipeline including headworks, wasteway, fish screen box and possibly a portion of the new diversion dam. Construction of the pipe crossing will not be included in this phase. The diversion pipeline will serve as the temporary diversion of Clear Creek during the following construction phase.
- Phase 3: 1999 Construction.** Construction of the remainder of the project including the new dam and fish ladder, fish screen, excavation of the sediment behind the existing dam, removal of the existing dam, gorge modification and pipe crossing.
- Design services during both phases of construction include identification of mitigation, selection of a contractor, construction review and continuing project management and reporting.

MONITORING AND DATA EVALUATION:

DFG has a program of monitoring Salmon and Steelhead species in Clear Creek. This program will continue after construction of the proposed project. The benefits of the proposed project to the runs of Chinook Salmon and Steelhead will be confirmed under the existing program.

IMPLEMENTABILITY:

The proposed project will be designed and built in compliance with existing and foreseeable state, federal and local laws and regulations. No existing or foreseeable laws or regulations are known to prevent or significantly affect the ability to cost effectively build the project. All appropriate state, federal and local permits necessary for construction will be obtained in a timely manner.

Services offered in this proposal have been closely integrated with work being conducted by DWR under contract with DFG and BOR. Integration of services has been accomplished during multiple interagency proposal development meetings. The proposed project will be developed as a private-public partnership with continued close coordination through frequent meetings.

Permanent access to the south side of Clear Creek will be required as part of the project. Existing private roads approach the south bank of Clear Creek near the proposed project from both up and downstream. Use of these roads will require right-of-way agreements with one to three land owners. If land owners on both of these existing roads are uncooperative, a new road, one mile in length, may be constructed from Cloverdale Road to the project on BLM land. Estimated costs for acquiring rights-of-way and road improvements on BLM and private lands are included in the construction cost estimate. Land ownership and possible access routes are shown in Exhibit 6.

The proposed project will be built in compliance with CEQA and NEPA. The project is consistent with environmental regulations and is not likely to result in impacts which may compromise the feasibility of the project. Mitigation will be implemented for minor impacts expected as a result of construction activities.

The proposed project is not dependent on other projects in the basin, however, other existing and proposed projects in the Clear Creek basin will not realize their full benefit until completion of the proposed project. These complementary projects include upland restoration reducing the yield of fines to the stream, spawning gravel supplements, increased releases from Whiskeytown Dam, and construction of instream habitat structures.

There is considerable local participation and public support through the Western Shasta Resource Conservation District (WSRCD) and the Clear Creek Coordinated Resource Management Plan (CRMP) for projects which restore and enhance the environment in the Clear Creek basin. Restoration of the Clear Creek watershed is considered a model project by the WSRCD and the Shasta-Tehama Bioregional Council. The proposed project is consistent with and necessary for accomplishing the restoration and enhancement of environmental conditions in the basin.

The project is consistent with existing and proposed land use within the basin. Land use trends within the basin include purchase of private land by the Bureau of Land Management (BLM) for the purpose of enhancing the fishery and recreation value of the watershed. Private land use trends include continuing high value residential development upstream of the proposed project and continuing commercial development downstream of the project. Existing and proposed land ownership and use is addressed in detail in the Lower Clear Creek Watershed Analysis prepared by the WSRCD.

The proposed project is not sensitive to long term changes in hydrologic or climatic conditions. No hazardous materials are known to have been used or to be present in the vicinity of the proposed project.

Exhibit 1

Saeltzer Dam Fish Passage Project

Project Features:

1. New low height dam.
2. Fish passage facility.
3. 1830' buried pipe, screening facility.
4. Remove 20,000 CY sediment.
5. Remove existing dam.
6. 240', 4-span elevated pipe crossing.
7. Gorge modification.

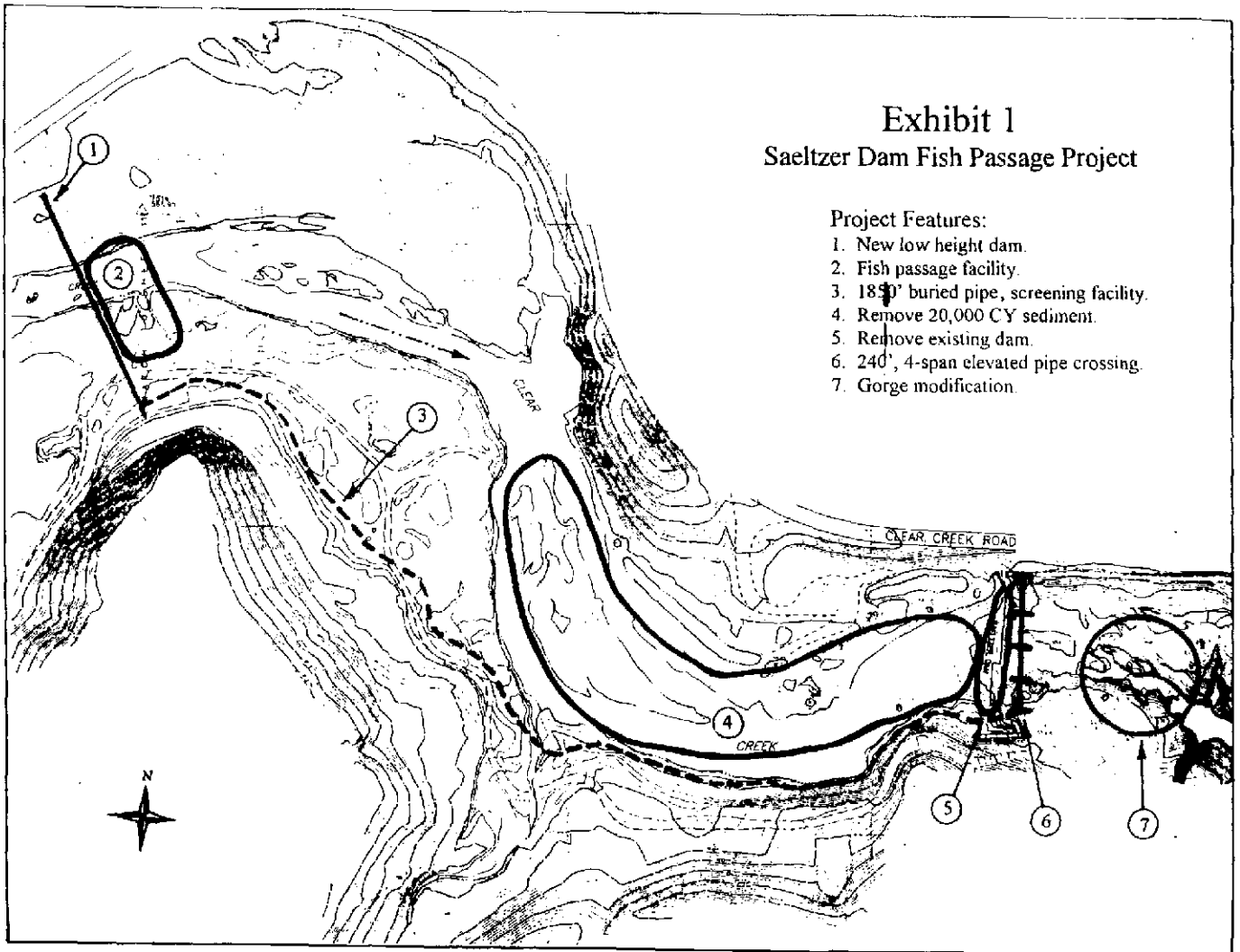


Exhibit 2: Location of the Lower Clear Creek Watershed

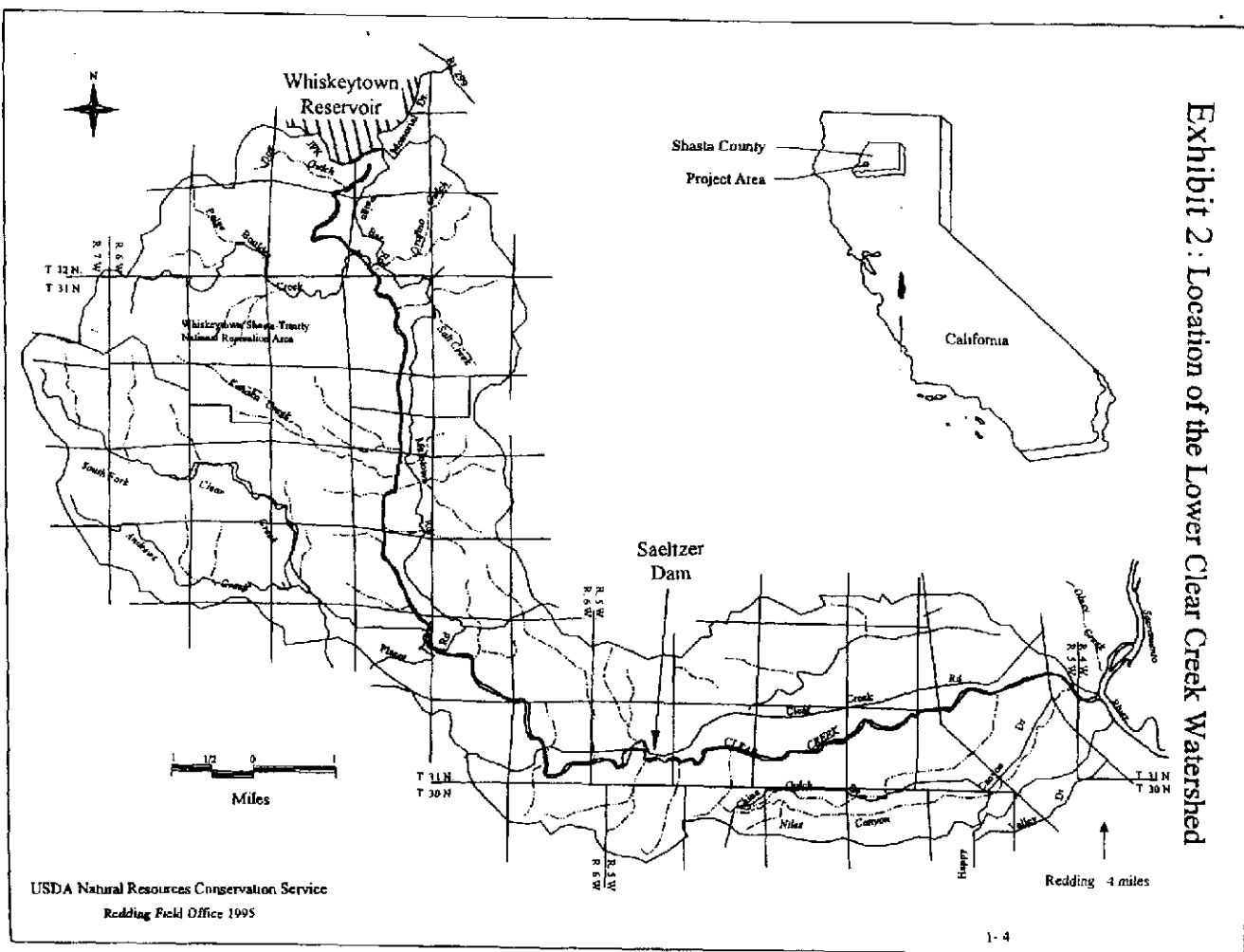


Exhibit 3

Estimated spawning habitat available above Saeltzler Dam for Chinook Salmon and Steelhead Trout at selected flows. Present conditions of substrate (average of 1980 "poor" conditions and ideal conditions). Reference: USBR special report of March 1986 "Central Valley Fish and Wildlife Management Study, Evaluation of the Benefits and costs of improving the anadromous fishery of Clear Creek, California".

Flow (CFS)	Chinook (Nov. and Dec.) Area (1000 Sq. Ft.)	Steelhead (Jan. to Mar.) Area (1000 Sq. Ft.)
50 (1)	N/A	418
100 (2)	696	708
130	725	828
160	735	880
165	735	890
200	723	953
250	671	979

1. 50 cfs flows proposed by USBR for critically dry years January through October.
2. 100 cfs flows proposed by USBR for critically dry years, November and October and January through March under "improved" conditions.
3. Maximum spawning area occurs at 225 cfs with an estimated 2,377,660 sq. ft. of habitat.

Exhibit 4

Estimated carrying capacity above Saeltzer Dam in number of spawning pairs of Clear Creek at selected spawning flows, based on available or potential spawning habitat. Present conditions of substrate (average of 1980 "poor" conditions and ideal conditions). Reference: USBR special report of March 1986 "Central Valley Fish and Wildlife Management Study, Evaluation of the benefits and costs of improving the anadromous fishery of Clear Creek, California".

Flow (CFS)	Chinook Spawning Pairs	Steelhead Spawning Pairs
50	N/A	1793
100	1739	3039
130	1812	3552
160	1838	3777
165	1837	3818
200	1806	4088
250	1678	4200

EXHIBIT 5

References:

Supporting Studies:

- 1) March 1986, Clear Creek Fishery study, Department of Water Resources, Northern District.
- 2) September 1986, Central Valley Fish and Wildlife Management Study, Evaluation of the Benefits and Costs of Improving the Anadromous Fishery of Clear Creek, California, US Department of the Interior, Bureau of Reclamation.
- 3) December 1993, Biological Assessment, California Endangered Species Act, Clear Creek Fishery Habitat Restoration Project, California Department of Fish and Game.
- 4) January 1996, Lower Clear Creek Watershed Analysis, Western Shasta Resource Conservation District and Bureau of Land Management, Redding Resource Area.
- 5) June 1996, Benefits of Increased Minimum Instream Flows on Chinook Salmon and Steelhead in Clear Creek, Shasta County, CA 1995-96, Northern Central Valley Fishery Resource Office, U.S. Fish and Wildlife Service.
- 6) March 1997, McCormick Saeltzler Dam, Sediment Transportation, Natural Resources Conservation Service, Davis, CA.

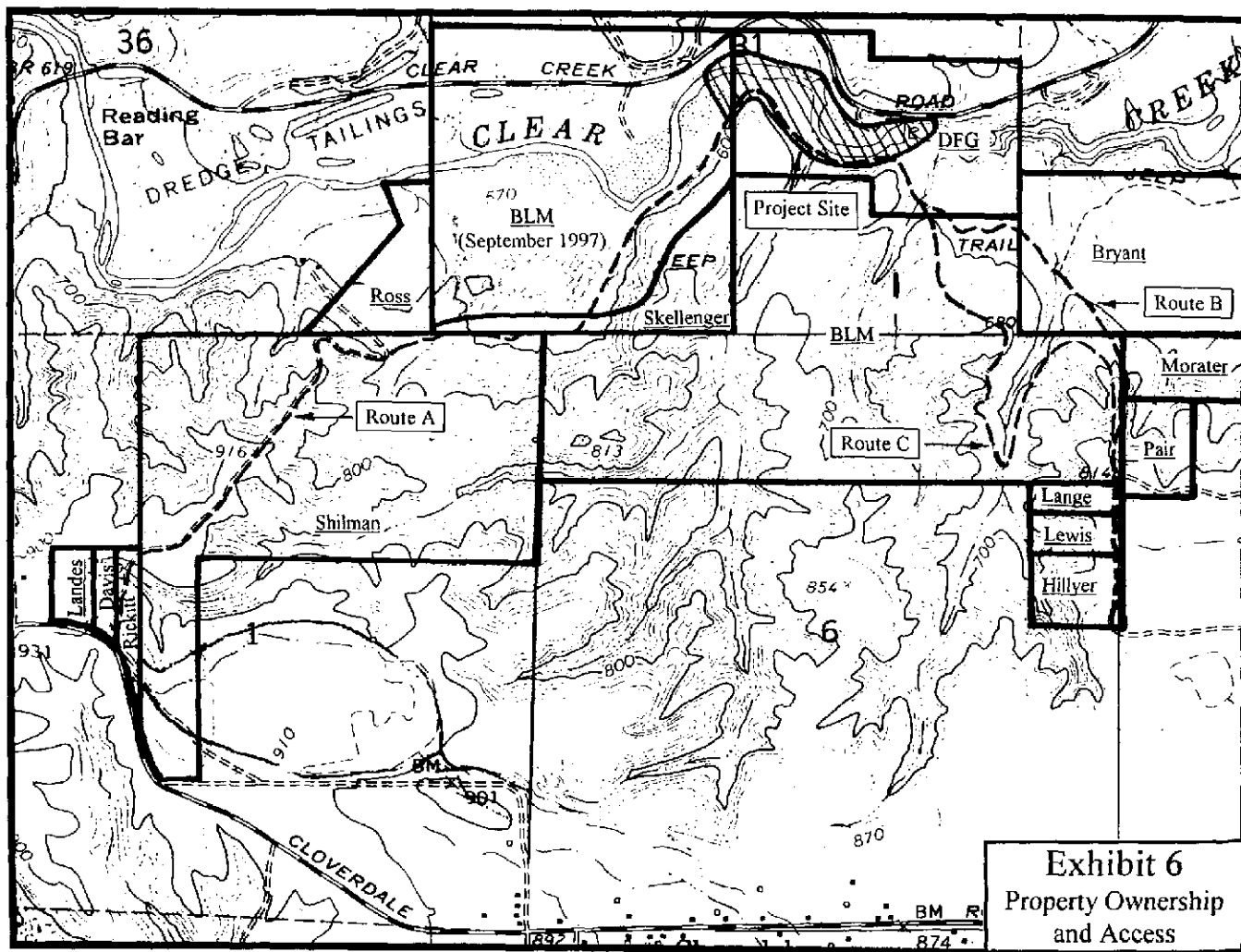
Environmental Assessments and Permits:

- 1) Initial Study and Checklist, Clear Creek Fishery Habitat Restoration Project, December 1993 (Dredging behind existing dam and instream habitat improvements) plus supporting studies and assessments. No action taken due to concern for integrity of existing dam.

Restoration Plans:

- 1) Upper Sacramento River Fisheries and Riparian Habitat Management Plan, 1989.
- 2) Central Valley Salmon and Steelhead Restoration Enhancement Plan, 1990.
- 3) Restoring Central Valley Streams: A Plan for Action, 1993.
- 4) Draft Anadromous Fish Restoration Plan, 1996.
- 5) Steelhead Restoration and Management Plan for California, 1996.
- 6) Actions to Restore Central Valley Spring-run Chinook Salmon, 1996.
- 7) CalFed Bay Delta Program Sacramento River and Tributaries Technical Team Meeting Report, 1997.

1-002420



1-002420

Costs and Schedule to
Implement Proposed Project

BUDGET COSTS:

Funding is presently being sought for the design phase (phase 1) of the project as a service contract with the understanding that, provided the estimated costs of construction are reasonable and Calfed Category III funds remain available, construction will be funded as the project progresses.

Costs for the design phase of the project have been estimated with modest consideration of the study, design, drafting, permitting and project management efforts required for the project as described. These costs, identified by task and consultant and assuming access along Route A, are shown in Exhibit 7. Additional services required for design of the project and provided by DWR under DFG and BOR funding include site surveying, site geotechnical investigation, preliminary design of the fish screens and preliminary design of the fish ladder. Contributing funding from DFG and BOR for these services total \$150,000.

Costs of construction for both construction phases of the project have been estimated by a contractor with considerable experience building similar projects. The contractor was provided with the description of the project and was guided on a tour of the project site. Site topography from an aerial survey was provided to assist in preparation of this estimate but no geotechnical information was available for the contractors estimate. The contractors construction cost estimates are shown in Exhibit 8. Estimated costs for design services during construction are shown in Exhibit 9.

CVPIA Section 12 authorizes matching funds for "channel restoration, passage improvements, and fish ladder construction". Local representatives of CVPIA have indicated a potential contribution of \$500,000 to \$800,000 is reasonably possible toward specific construction activities including dredging of sediments upstream of the existing Saeltzer Dam, removal of the dam and modification of the gorge.

TFWDC does not have a revenue base capable of supporting a project providing the priority habitat and benefits for priority species of the proposed project. If the proposed project is to be implemented, additional funding is necessary to make up the difference between the existing and potentially available funds from CVPIA and the design and construction costs of the project. The proposed project, the purpose of which is to enhance the habitat for species considered a priority by Calfed, is a significant opportunity to meet the objectives of the Calfed Category III funding program and is therefore seeking the balance of project costs from the Calfed Category III funds.

Operation and maintenance of the constructed project will be TFWDC's responsibility working closely with DFG personnel.

Construction of the project is anticipated in two phases using two construction contracts. Contractors for each construction contract will be selected based on a competitive bid basis from a list of prequalified contractors. Prequalification is necessary because of the risk and nature of work to be accomplished. Contractors without specific experience in the areas of work to be conducted will be discouraged from bidding. Prequalification is not expected to reduce the number of potential bidders below the Calfed minimum of three.

SCHEDULE:

The proposed project is anticipated to be built over two construction seasons. Timeframes required for environmental studies, engineering studies, design, access, and bid advertising make it unreasonable to expect the project to be built in one construction season. Assuming a start date of October 1, 1997, schedule milestones include the following:

- | | |
|-------------------|--|
| April 30, 1998 | Completion of design required for the first phase of construction. Included in this effort are limited environmental studies, limited permits, site hydraulic studies and design of the pipeline, headworks, wasteway, screening box and possibly portions of the new diversion dam. |
| May 31, 1998 | Selection of Phase 2 contractor. |
| October 31, 1998 | Completion of Phase 2 construction. |
| December 31, 1998 | Completion of design of remaining project facilities. |
| April 30, 1999 | Selection of Phase 3 contractor. |
| October 31, 1999 | Completion of project construction. |

Project schedules by task are shown in Exhibits 10 through 12.

THIRD PARTY IMPACTS:

Third party impacts during construction will include reduced recreation in the project area and construction traffic with associated noise and dust. Noise and dust will be limited by local ordinance. Few residences are located in close proximity to the project will be affected by noise and dust. These impacts are not expected to continue after completion of the project.

Third party impacts after construction will include maintenance traffic. The potential for increased dust after construction is limited by the proposed improved road surface (gravel vs dirt). Property owners most affected by the maintenance traffic will also benefit from the improved road.

Exhibit 7

Coat Estimate: Phase 1 Design

State of California Department of Water Resources:

Task:

Site Survey
Geotechnical Investigation
6, Fish Ladder
7, Site Work / Screens

Subtotal

DWR and BOR Contract

150000.00

Norman S. Braithwaite Incorporated:

Task:	Classification	Direct Labor (hr)	Direct Salary	Labor Overhead	Service Contracts	Materials	Misc. Other	Total
1, Environmental Clearance	Senior Engineer	20	29.50	44.25	0.00	0.00	100.00	1575.00
2, Permitting	Senior Engineer	20	29.50	44.25	0.00	0.00	100.00	1575.00
3, Hydraulic Studies	Senior Engineer	80	29.50	44.25	0.00	0.00	50.00	5950.00
	Technician	60	10.50	15.75	0.00	0.00	0.00	1575.00
4, New Dam / Head Works	Senior Engineer	120	29.50	44.25	10000.00 ¹	0.00	50.00	18900.00
	Technician	100	10.50	15.75	0.00	0.00	0.00	2625.00
5, Pipeline	Senior Engineer	80	29.50	44.25	0.00	0.00	50.00	5950.00
6, Fish Ladder	Senior Engineer	80	29.50	44.25	0.00	0.00	50.00	5950.00
	Technician	40	10.50	15.75	0.00	0.00	0.00	1050.00
7, Site Work / Screens	Senior Engineer	120	29.50	44.25	5000.00 ²	0.00	100.00	13950.00
	Technician	60	10.50	15.75	0.00	0.00	0.00	1575.00
8, Detailed Drawings Bid Documents	Senior Engineer	100	29.50	44.25	0.00	0.00	0.00	7375.00
9, Project Management	Senior Engineer	360	29.50	44.25	0.00	0.00	30500.00 ³	57050.00
Subtotal:								125100.00

1-002424

1-002424

Exhibit 7, Continued

North State Resources:

Task:	Classification	Direct Labor (hr)	Direct Salary	Labor Overhead	Service Contracts	Materials	Misc. Other	Total
1, Environmental Clearance	Senior Scientist	294	31.50	53.55	15000.00 ⁴	0.00	1000.00	41004.70
2, Permitting	Senior Scientist	224	31.50	53.55	0.00	0.00	1000.00	20051.20
Subtotal:								61055.90

Thee Engineering Company:

Task:	Classification	Direct Labor (hr)	Direct Salary	Labor Overhead	Service Contracts	Materials	Misc. Other	Total
4, New Dam / Head Works	Structural Engineer	61	33.13	47.71	0.00	0.00	0.00	4931.07
	Drafting	67	19.94	28.71	0.00	0.00	0.00	3259.79
5, Pipeline	Structural Engineer	116	33.13	47.71	0.00	0.00	0.00	9377.12
	Drafting	94	19.94	28.71	0.00	0.00	0.00	4573.44
6, Fish Ladder	Structural Engineer	73	33.13	47.71	0.00	0.00	0.00	5901.12
	Drafting	46	19.94	28.71	0.00	0.00	0.00	2238.07
7, Site Work / Screens	Structural Engineer	100	33.13	47.71	0.00	0.00	0.00	8083.72
	Drafting	138	19.94	28.71	0.00	0.00	0.00	6714.20
8, Detailed Drawings Bid Documents	Structural Engineer	86	33.13	47.71	0.00	0.00	0.00	6952.00
Subtotal:								52030.51

Total Phase 1 Category III Costs:

\$238,186.41

- Notes: 1) \$10,000 for geotechnical services related to design of earthfill abutment.
 2) \$5,000 estimated for right of way survey.
 3) \$30,000 estimated for project liability insurance.
 4) \$15,000 estimated for historic documentation of existing dam.

Exhibit 8

Construction Cost Estimate

Phase 2: 1998 Construction

Description	Estimated Quantity Units	Unit Price	Total
Contractor Indirects	1 LS	165000	165000.00
Mobilization and Demobilization	1 LS	20000	20000.00
Access Roads	2 Mile	8500.00	17000.00
Intake Box and Screen Structure	90 CY	625.00	56250.00
Fish Ladder	135 CY	625.00	84375.00
Fish Ladder Gates and Walkways	1 LS	32000.00	32000.00
Irrigation Conduit (42" Pipeline)	1900 LF	132.00	250800.00
Surveying	1 LS	12000.00	12000.00
Mitigation	1 LS	7500.00	7500.00
Security	5 MO	1000.00	5000.00
Testing	1 LS	8500.00	8500.00
Safety	1 LS	3500.00	3500.00
			661925.00

Phase 3: 1999 Construction

Description	Estimated Quantity Units	Unit Price	Total
Mobilization and Demobilization	1 LS	20000	20000
New Dam Dewatering	1 LS	120000.00	120000.00
New Dam Excavation	3333 CY	6.50	21666.67
Structural Concrete	350 CY	625.00	218750.00
Earth Work	1500 CY	5.00	7500.00
Riprap	1200 TN	45.00	54000.00
Sediment Removal	20000 CY	14.50	290000.00
Sediment Removal Mitigation	1500 TN	14.50	21750.00
Suspended Pipeline	240 LF	500.00	120000.00
Saeltzer Dam Removal	1200 CY	65.00	78000.00
Fish Passage in Gorge	3500 CY	45.00	157500.00
Erosion Control	5 AC	2000.00	10000.00
Flow Meter	1 EA	7500.00	7500.00
Fish Screen	1 LS	75000.00	75000.00
Contingency 10%	1 LS	200000.00	200000.00
Testing	1 LS	9000.00	9000.00
Safety	1 LS	3500.00	3500.00
Security	6 MO	1000.00	6000.00
Subtotal			1420166.67
Total			2082091.67

Exhibit 9
Cost Estimate, Phase 2 & 3
Design Services During Construction

Norman S. Braithwaite Incorporated:

Task:	Classification	Direct Labor (hr)	Direct Salary	Labor Overhead	Service Contracts	Materials	Misc. Other	Total
1, Project Management	Senior Engineer	160	29.50	44.25	0.00	0.00	0.00	11800.00
2, Construction Management	Senior Engineer	160	29.50	44.25	0.00	0.00	500.00	12300.00
3, Mitigation	Senior Engineer	20	29.50	44.25	0.00	0.00	0.00	1475.00
Subtotal:								25575.00

North State Resources:

Task:	Classification	Direct Labor (hr)	Direct Salary	Labor Overhead	Service Contracts	Materials	Misc. Other	Total
3, Mitigation	Senior Scientist	176	31.50	53.55	5000.00	0.00	1000.00	20968.80
Subtotal:								20968.80

Thee Engineering Company (Consultations):

Task:	Classification	Direct Labor (hr)	Direct Salary	Labor Overhead	Service Contracts	Materials	Misc. Other	Total
1, Project Management	Structural Engineer	40	33.13	47.71	0.00	0.00	0.00	3233.49
Subtotal:								3233.49

Construction Management Subconsultant (DWR or FMCH, Inc):

Task:	Classification	Direct Labor (hr)	Direct Salary	Labor Overhead	Service Contracts	Materials	Misc. Other	Total
2, Construction Management								351000.00
Subtotal:								351000.00

--- during construction:

400777.29

1-002427

1-002427

Exhibit 10

Phase I: Design Schedule

Task ID	Name	1997			1998												1997			
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
1	Environmental Clearance																			
2	Permitting																			
3	Hydraulic Studies																			
4	New Dam / Head Works																			
5	Pipeline																			
6	Fish Ladder																			
7	Site Work / Screens																			
8	Detailed Drawings																			
9	Bid Documents																			
9	Project Management																			

1-002428

Exhibit 11

Phase 2: 1998 Construction Schedule

Task ID	Name	1998											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Access / Mobilization / Mitigation												
2	Structures												
3	Pipe Lines												
4	Erosion Control												

1-002429

Exhibit 12

Phase 3: 1999 Construction Schedule

Task ID	Name	1999											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Access / Mobilization / Mitigation												
2	Excavate Sediment												
3	Remove Existing Dam / Mitigation												
4	Gorge Modification												
5	Pipe Crossing												
6	New Diversion Dam												
7	Fish Ladder												
8	Screens												
9	Erosion Control												

1-002430

Applicant Qualifications

The proposed project is anticipated to be accomplished as a private-public partnership project. The project owner is TFWDC. Norman S. Braithwaite Incorporated has been selected to represent TFWDC in matters relating to fish passage at Sault Dam. Design of the proposed project will be conducted by Norman S. Braithwaite Incorporated with assistance from North State Resources (NSR - environmental and permitting), DWR (site surveys, geotechnical investigation, preliminary design of the fish ladder and fish screen), The² Engineering Company (structural calculations and drafting), and specialty subconsultants providing limited services. NSR and The² Engineering Company will be subconsultants to Norman S. Braithwaite Incorporated. Services to be provided by DWR during the first phase of the project are already funded therefore no formal agreement will be required between DWR and Norman S. Braithwaite Incorporated. A project organization chart for Phase 1 services is shown in Exhibit 13. The project team for design services during construction will include a subconsultant responsible for construction review.

Because of the number of agencies involved in this project, the preliminary design of project facilities will be conducted by committee. Design committees consisting of representatives of appropriate agencies and Norman S. Braithwaite Incorporated will meet to discuss design issues and form a design concept at the onset of design of each major project component. Design issues will be documented and a preliminary design concept will be prepared to best meet the identified requirements of the component. After completion of the preliminary design of the component, a second design committee meeting will be conducted to review the preliminary design and identify minor modification prior to final design. This design methodology should minimize controversy over design requirements of project facilities, minimize review times and prevent changes in project facilities after substantial design efforts.

Norman S. Braithwaite Incorporated:

Norman S. Braithwaite Incorporated was organized in August 1987 in response to a growing regional demand for hydrologic and hydraulic engineering services. Prior to this time, Mr. Braithwaite provided similar services as an employee of TKO Power (now CHI-West) and Ott Water Engineers. Services provided by Norman S. Braithwaite Incorporated which directly relate to the proposed project include hydrologic and hydraulic studies, hydraulic design, channel stability analysis and sediment transport.

Mr. Braithwaite will be responsible for project management, hydraulic design, site civil design, stability computations of the proposed dam and checking design of the elevated pipeline. Mr. Braithwaite has considerable experience working with multidisciplinary project teams comprised of specialty consultants and representatives of collaborative groups, local, state and federal agencies. By prior employment, Mr. Braithwaite designed a significant and successful fish ladder over Winchester Dam on the North Umpqua River in central Oregon and a diversion facility with fish passage and screens at the headworks of the Lacombe Irrigation District in north central Oregon. Most recently, Mr. Braithwaite was responsible for hydraulic and civil design of an innovative sill structure to prevent channel deepening while providing continued fish passage at the Santa Rosa Street bridge over San Luis Creek in San Luis Obispo.

Mr. Braithwaite is a registered Professional Engineer in the State of California and a 1980 civil engineering graduate of California State University, Chico. Mr. Braithwaite regularly attends

advanced engineering courses, seminars and symposiums related to hydraulics and hydrology as well as maintains active rolls in local professional engineering societies and associations.

References: Santa Rosa Street Bridge over San Luis Creek:
Barbara Lynch, City of San Luis Obispo, (805) 781-7191.

North Umpqua River fish ladder, Winchester Hydroelectric Project:
Dave Loomis, Oregon Dept of Fish and Wildlife, (541) 440-3353

Lacomb Irrigation District diversion facility:
John Johnson, Oregon Dept of Fish and Wildlife, (503) 872-5255 ex. 5413#.

North State Resources: — — —

North State Resources is a twenty-person firm that consults in environmental sciences and regulatory compliance. NSR was established in 1980 and incorporated in 1986. Headquartered in Redding, the firm represents federal, state and local agencies and private clients throughout the western United States. Most NSR work is conducted in support of projects that have potential to significantly affect terrestrial or aquatic organisms or habitat.

The NSR technical staff includes specialists in wildlife biology, ecology, fisheries, botany, soil science, range ecology and wetland science. NSR applies these disciplines to evaluate and mitigate the effects of water resource development and other types of projects on the natural environment. NSR routinely assists engineers, planners and other professionals to resolve technical and regulatory issues that affect land and water use.

All NSR work is conducted in the context of the current regulatory framework. NSR maintains up-to-date understandings of survey protocols for numerous protected species and the firm routinely consults on matters relating to NEPA, Clean Water Act Section 404, federal Endangered Species Act and other regulatory statutes.

Laura Kuh will be responsible for the environmental clearance and permit applications. Ms Kuh, the Chief Executive Officer and a working principal of NSR, is an experienced NEPA program manager. Ms Kuh has been responsible for preparation of CEQA/NEPA documentation for several projects in the City of Redding and is presently responsible for CEQA/NEPA documentation for the Turtle Bay Pedestrian Bridge.

References:

Butte Creek Dam and Siphon Removal
Gary Brown, General Manager, Western Canal Water District, (916) 342-5083

Turtle Bay Pedestrian Bridge
Terry Hanson, City of Redding, (916) 225-4009

South Bonnyview Bridge
Mike Cooper, CH2M-Hill, (916) 243-5886

The² Engineering Company:

The² Engineering Company was established in January 1992 and incorporated in 1995. Previously, Mr. Cram, the principal engineer and owner of The² Engineering Company provided structural engineering services while working for CH2M-Hill and several other consulting firms in northern California. The² Engineering Company specializes in structural engineering for commercial, industrial and institutional projects. Structural engineering design services conducted by Mr. Cram similar to those anticipated on the proposed project include instream diversion facilities, pipeline and a wide variety of reinforced concrete hydraulic and retaining structures.

The² Engineering Company will be responsible for structural design and detailed drafting of project facilities. Mr. Cram is a 1978 graduate of the Civil Engineering program at California State University, Chico, has completed course work for a Masters program in Structural Engineering from California State University, Sacramento and is a registered Civil and Structural Engineer in the states of California and Nevada. Under previous employment Mr. Cram was responsible for design of diversion and pipeline facilities for the Bear Creek Hydroelectric Project and temporary hydraulic structures to allow modification of the Tehema-Colusa Canal. More recently, Mr. Cram designed a large reinforced concrete settling basin for the Chalk Bluff Water Treatment Plant. Mr. Cram regularly attends advanced engineering seminars and is active in local and regional professional engineering associations.

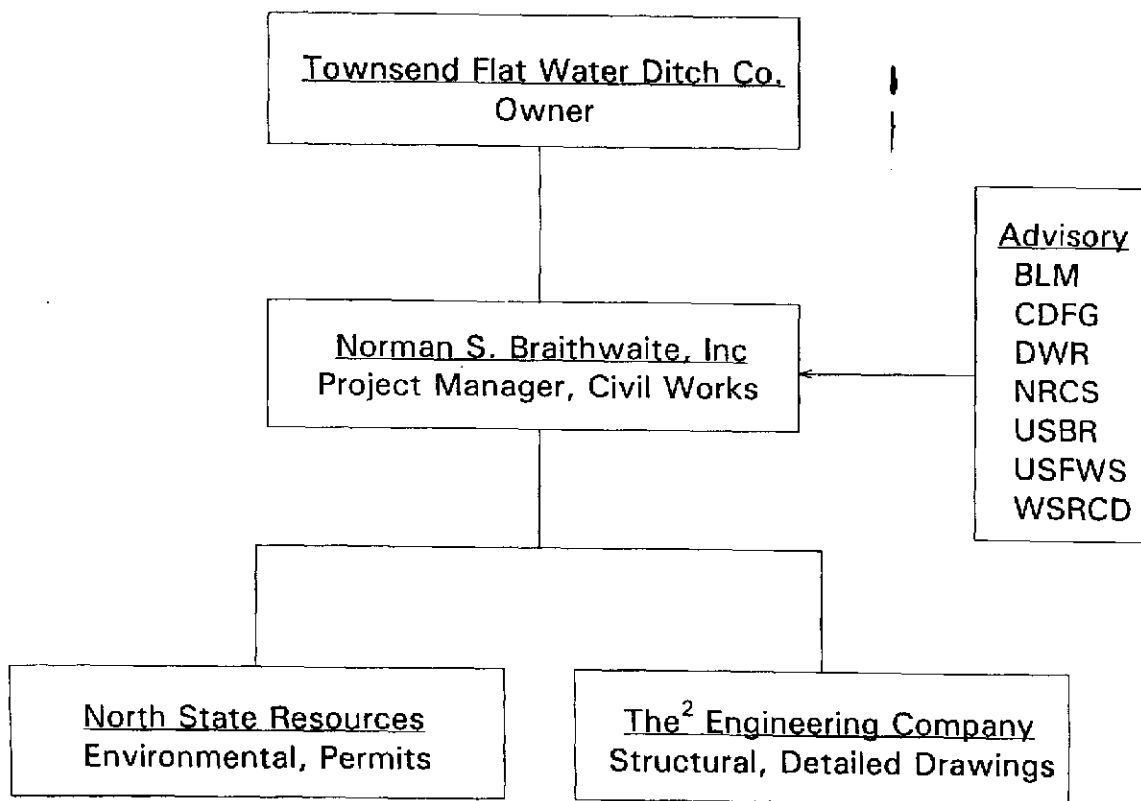
References: Bear Creek Hydroelectric Project
Mark Trawik, Ray Toney and Associates, (916) 241-6691

Tehema-Colusa Canal wasteways
Ray Toney, Ray Toney and Associates, (916) 241-6691

Chalk Bluff Water Treatment Project
Bob Morrison, CH2M-Hill, (916) 243-5831

Project team members know of no potential conflicts of interest in the performance of services for the proposed project.

Exhibit 13
Phase 1: Organization Chart



I - 0 0 2 4 3 5

— — —

Compliance with Standard Terms and Conditions

With the possible exception of the following, the terms and conditions of the appropriate contract appear acceptable.

Subcontracts: Exception to seeking competitive bids for professional service (environmental, design, specialty engineering) subcontractors is desired.

Insurance: Acceptance subject to funding of project oriented professional liability insurance policy. *Estimated cost of this insurance is included in the Phase 1 cost estimate.*

Forms including Non-Discrimination Compliance and Small Business Certificate as requested for service contracts are included as Exhibits 14 and 15.

Exhibit 14

NONDISCRIMINATION COMPLIANCE STATEMENT

COMPANY NAME

NORMAN S. BRAITHWAITE, INCORPORATED

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME

NORMAN S. BRAITHWAITE

DATE EXECUTED

7-25-97

EXECUTED IN THE COUNTY OF

SHASTA

PROSPECTIVE CONTRACTOR'S SIGNATURE

Norm S. Braithwaite

PROSPECTIVE CONTRACTOR'S TITLE

OWNER

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

NORMAN S. BRAITHWAITE, INCORPORATED

DEPARTMENT OF GENERAL SERVICES
Office of Small and Minority Business
1531 I Street, Second Floor
Sacramento, CA 95814-2016



Exhibit 15

SB APP 19970703

July 3, 1997

REF# 0016588
NORMAN S BRAITHWAITE INC
P O BOX 992815
REDDING CA 96099-2815

Dear Business Person:

The Office of Small and Minority Business (OSMB) congratulates your firm on becoming a certified small business. This formal certification entitles you to a five percent bidding preference on state government contracts according to the Small Business Procurement and Contract Act.

Your small business certification applies ONLY to the following industry groups(s) within the designated business type(s):

Business Type	Roman Numeral	Industry Group Name
SERVICE	iv	Architects, Engineers and Survey Services



Your firm's small business certification expires 07/31/1999.

Annual Submission Requirement

To maintain your small business certification status, gross receipts for your firm and any affiliate(s) must be submitted at the end of each fiscal year. Proof of annual receipts may be submitted in the form of either:

1. An audited financial statement, or
2. A copy of the ENTIRE SIGNED Federal tax return(s) (FTRs) as filed with the Internal Revenue Service (IRS).
3. If the FTR for the most recently completed tax year has not yet been filed with the IRS, submit an original notarized Affidavit of Income (AI). (See enclosed AI and instructions). A copy of the signed tax filing extension must accompany the AI if the filing due date has passed.

Note: All AIs must be replaced with the corresponding ENTIRE SIGNED FTR(s) by the tax filing due date or by the filing extension's expiration date, whichever occurs first.

Prompt Payment Program

The Prompt Payment Act encourages state agencies to pay invoices on a timely basis to certified service and commodity small businesses and recognized nonprofit organizations. Prompt payment is reinforced by adding interest penalties for late payments. The program includes the use of a rubber stamp to alert state agencies of a firm's certified small business or nonprofit organization's status.

Only certified service and commodity small business firms actively working with the state may participate in the Prompt Payment Program. Construction firms' compensation on late/unpaid progress payments is addressed in Public Contract Code, Section 10261.5.

To receive a prompt payment stamp, the following three items must be submitted to the OSMB:

1. A written rubber stamp request. Include the applicant firm's name, OSMB Reference number, and